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Ionospheric Data Report — January 1965

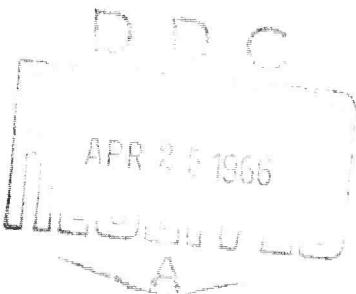
IONOSPHERIC DATA: BANGKOK, THAILAND

Compiled by: VICHAI T. NIMIT

Prepared for:

U.S. ARMY ELECTRONICS LABORATORIES
FORT MONMOUTH, NEW JERSEY

CONTRACT DA-36-039-AMC-00040(E)
ORDER NO. 5384-PM-63-91



SPONSORED BY THE ADVANCED RESEARCH PROJECTS AGENCY
FOR THE
THAI-U.S. MILITARY RESEARCH AND DEVELOPMENT CENTER
SUPREME COMMAND HEADQUARTERS
BANGKOK, THAILAND



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MENLO PARK, CALIFORNIA



(9) for
Data Report, January 1965,

(11) June 1965,
(12) 21 P.

(6) IONOSPHERIC DATA: BANGKOK, THAILAND

Prepared for:

U.S. ARMY ELECTRONICS LABORATORIES
FORT MONMOUTH, NEW JERSEY

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(10) Compiled by: VICHAI T. NIMIT

(10) SRI Project 4240

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I INTRODUCTION

Ionospheric observations are being carried out at the Laboratory of the Military Research and Development Center at Bangkok, Thailand, a joint United States-Thailand organization. A Model C-2 vertical-incidence sounder supplied and operated by the United States Army Radio Propagation Agency has been installed there. Table I gives pertinent information about the site.

Table I
VERTICAL-INCIDENCE SOUNDER SITE
AT BANGKOK, THAILAND

Geographic		Geomagnetic	
Latitude	Longitude	Latitude	Longitude
13.73°N	100.57°E	2.5°N	169.83°E

Dip angle: 10°N

Distance from dip equator: 450 km

Equipment:

Instrument: Type C2 (automatic)

PRF: 60 pps

Frequency sweep time: 30 sec

Frequency sweep range: 1 to 25 Mc

Pulse duration: 50 μ sec

Peak pulse power: approximately 10 kw.

The cooperation and participation of staff members of the Thailand Ministry of Defense and the support of the United States Advanced Research

Projects Agency, the United States Army Electronics Laboratories, and the United States Army Radio Propagation Agency made it possible for the data presented in this report to be accumulated.

II TERMINOLOGY AND SYMBOLS

The terminology and symbols used in this data report are in accordance with the conventions established by the World Wide Soundings Committee.¹

A. TERMINOLOGY

$f_o F_2$	The ordinary wave critical frequency for the F_2 and F_1 layers and the E region, respectively.
$f_o E_s$	The ordinary wave top frequency corresponding to the highest frequency at which a mainly continuous E_s trace is observed.
$f_b E_s$	The blanketing frequency of an E_s layer, i.e., the lowest ordinary wave frequency at which the E_s layer begins to become transparent. (This is usually determined from the minimum frequency at which reflections from layers at greater heights are observed.)
f_{min}	The frequency below which no echoes are observed.
$M(3000)F_2$	The maximum usable frequency factor for a path of 3000 km for transmission by the F_2 layer.
$h' F_2$	The minimum virtual height of the ordinary wave trace for the highest stable stratification in the F region.
$h' F$	The most significant F-region virtual height parameter, that for the lowest F-region stratification. (Thus $h' F$ is identical with the current $h' F_2$ when F-region stratification is absent, i.e., at night, and with current $h' F_1$ when F_1 stratification is present.)

¹W. R. Piggott and K. Rawer, URSI Handbook of Ionogram Interpretation and Reduction of the World Wide Sounding Committee (Elsevier Publishing Company, Amsterdam, London, New York, 1961).

B. DESCRIPTIVE LETTERS

Certain effects observed on ionograms may make it difficult or impossible to obtain accurate numerical values. The descriptive letters listed below, when used alone indicate, in general, the presence of a phenomenon that may have influenced the measurement. Qualifying letters (Sec. C) indicate the nature of the uncertainty.

- A A lower thin layer present, e.g., Es
- B Absorption in the vicinity of f_{\min}
- C Any non-ionospheric reason
- D The upper limit of the normal frequency range
- E The lower limit of the normal frequency range
- F Spread echoes present
- G Ionization density of the layer too small for measurement
- H Stratification present
- L No sufficiently definite cusp between layers of the trace
- M Ordinary and extraordinary components indistinguishable
- N Conditions such that the measurement cannot be interpreted
- O Measurement referring to the ordinary component
- R Attenuation in the vicinity of a critical frequency
- S Interference or atmospherics
- T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful
- V Forked trace
- W Echo lying outside the height range recorded
- X Measurement referring to the extraordinary component
- Y Intermittent trace
- Z Third magneto-ionie component present.

C. QUALIFYING LETTERS

- D Greater than . . .
- E Less than . . .

- I An interpolated value
- J Ordinary component characteristic deduced from the extraordinary component
- O Extraordinary component characteristic deduced from the ordinary component
- T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful
- U Uncertain numerical value
- Z Measurement deduced from the third magneto-ionic component.

D. DESCRIPTION OF STANDARD TYPES OF E_s

The eight standard types of E_s are identified by lower-case letters: f, l, c, h, q, r, a, and s. These letters suggest the corresponding names, flat, low, cusp, high, equatorial, retardation, auroral, and slant, respectively, but are not restrictive. The letter n is used to designate an E_s trace that does not correspond to one of the eight types. The classifications are:

- f An E_s trace showing no appreciable increase of height with frequency, usually relatively solid at most latitudes. (This classification may be used only at night; it appears that flat E_s traces observed in the daytime are classified according to their virtual height: h or l.)
- l A flat E_s trace at or below the normal E-region minimum virtual height in the day or below the E-region minimum virtual height at night.
- c An E_s trace showing a relatively symmetrical cusp at or below $f_0 E$. (This is usually continuous with the normal E trace, although when the deviative absorption is large, part or all of the cusp may be missing—usually a daytime type.)
- h An E_s trace showing a discontinuity in height with the norm. l E-region trace at or above $f_0 E$ and an asymmetrical cusp. (The low-frequency end of the E_s trace lies clearly above the high-frequency end of the normal E trace—usually a daytime type.)
- q An E_s trace that is diffuse and nonblanketing over a wide frequency range, the spread being most pronounced at the upper edge of the trace. (This type is common in daytime in the vicinity of the magnetic equator.)
- r An E_s trace that is nonblanketing over part or all of its frequency range, showing an increase in virtual height at the high-frequency

end similar to group retardation. (This is distinguished from the usual group retardation—as in the case of an occulting chick E region—by the lack of group retardation in the F traces at corresponding frequencies and the lack of complete blanketing.)

- a An Es pattern having a well-defined flat or gradually rising lower edge with stratified and diffuse (spread) traces present above it. (These sometimes extend over several hundred kilometers of virtual height.)
- s A diffuse Es trace that rises steadily with frequency, usually emerging from another type of Es trace. (The rising trace alone is classified as s; the horizontal trace is classified separately. At high latitudes, the slant trace usually starts to rise from a horizontal Es trace, such as l or f, at frequencies that greatly exceed the E-region critical frequency, e.g., about 6 Mc; whereas at low latitudes it usually rises from equatorial-type Es, q, c, or h, at frequencies near the regular E critical frequency. Type s is never used to determine $f_0 E$ unless echoes clearly identifiable as Es echoes are seen.)
- n An E trace that cannot be classified as one of the standard types. (This must not be used for intermediate cases between any two classes. A choice should always be made whenever possible, even if it is doubtful.)

E. MULTIPLE REFLECTIONS FROM Es

When the ionogram shows the presence of multiple reflections from Es, the number of traces seen will be recorded with the letter indicating the type.

Characteristic: f_{min}

IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

January 1965

Observed at:

Bangkok, Thailand

Lat. 13.73° N, Long. 100.57° E

105° E Mean Time (GMT + 7 hours)

Hour Date \	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
1	C	C	C	C	C	C	C	C	025*	024	C	026	025	C	C
2	C	023	012	015	015	015	B	020	C	C	031	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	024	028	C	C
4	C	C	C	C	C	C	C	C	C	029	039	038	036	E032S	03-
5	C	C	C	C	C	C	C	C	C	E032S	029	032	C	C	04-
6	C	C	C	C	C	C	C	C	C	C	C	034	028	028	02-
7	017	016	015	033	022	016	B	020	027	023	028	033	035	035	03-
8	E016S	014	012	013	E	016	B	020	020	025	034	035	C	034	03-
9	E018S	014	014	012	016	L	B	021	030	E031S	E025S	028	E039S	040	04-
10	019	015	015	C	C	C	C	C	C	C	031	E040S	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	015	C	B	C	029	034	040	041	038	040	03-
13	026	015	015	018	B	B	B	023	023	027	036	C	C	C	03-
14	017	017	015	015	020	020	024	025	028L	032	043	034	036	B	03-
15	018	017	016	016	E014S	B	B	024	030	E032S	E033S	033	052	050	05-
16	036	B	021	026	B	B	B	033	050	C56	053	050	B	B	B
17	B	B	B	B	B	B	B	B	B	E046C	E052C	E049C	E054C	C	C
18	C	C	C	C	C	C	C	C	C	C	033	045	038	C	C
19	C	C	C	C	C	C	C	C	C	048	C	035	050	043	04-
20	021	019	020	017	B	B	B	021	030	033	045	050	052	050	03-
21	C	C	C	C	C	C	C	C	C	024	036	C	029	029	02-
22	031	019	020	023	021	027	023	025	031	035	C	038	050	028	05-
23	026	020	019	021	020	022	020	025	029	034	048	046	050	045	05-
24	026	027	024	020	020	019	B	025	030	034	042	039	050	040	03-
25	024	019	019	016	B	B	B	024	028	025	037	034	033	027	02-
26	020	016	015	E	016	015	B	E018S	E028S	E025S	033	050	052	039	03-
27	018	014	018	013	B	B	B	E024S	020	022	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	035	048	050	052	04-	04-
29	018	018	017	014	016	B	B	021	E025S	030	035	045	036	036	03-
30	018	016	015	014	B	B	B	E023S	028	028	027	039	045	049	03-
31	023	014	013	013	017	B	B	E024S	028	034	027	048	041	045	03-
Median Count	020 18	017 18	015 19	016 17	017 12	018 3	023 3	024 18	028 19	032 24	035 24	039 26	039 23	040 19	038 22
UQ	026	019	019	021	020	021	024	025	030	034	041	046	050	045	04-
LQ	018	015	015	014	016	016	021	021	025	031	034	035	032	03-	03-
QR	8	4	4	7	4	5	3	4	5	9	10	12	15	13	12

* Tabulation of 025 = 2.5 Mc.

IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

January 1965

	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
5*	024	C	026	025	C	C	032	027	E024S	E025S	E024S	021	C	020	019
	C	031	C	C	C	C	C	C	C	C	C	C	C	C	C
	C	C	024	028	C	C	C	C	C	C	C	C	C	C	C
	029	039	038	036	E032S	034	032	023	025	C	C	C	C	C	C
	E032S	029	032	C	C	043	C	C	C	C	C	C	C	C	C
	C	C	034	028	028	025	025	E018S	E019S	E017S	019	018	E019S	E017S	E017S
	023	028	033	035	035	035	032	032	025	024	020	018	019	018	E017S
	025	034	035	C	034	035	032	028	E024S	E019S	019	020	020	E020S	E019S
	E031S	E025S	028	E039S	040	044	023	023	028	019	019	019	020	021	020
	C	031	E045S	C	C	C	C	C	C	C	C	C	C	C	C
	C	C	C	C	C	C	031	C	C	C	C	C	C	C	C
	034	040	041	038	040	035	035	025	020	028	019	C	C	C	C
	027	036	C	C	C	030	023	031	031	F024S	018	019	021	020	E017S
BL	032	043	034	036	B	035	033	030	024	E020S	E019S	020	C	024	020
	E032S	E033S	033	052	050	053	053	050	060	035	050	030	031	031	030
	056	053	050	B	B	B	053	050	050	048	030	B	B	B	B
	E046C	E052C	E049C	E054C	C	C	E027C	E025C	E028C	E026C	E021C	E021C	E025C	C	C
	C	033	045	038	C	C	032	020	031	C	C	C	C	C	C
	048	C	035	050	043	046	037	035	032	024	025	C	023	025	029
	033	045	050	052	050	033	025	027	027	026	028	C	C	C	C
	024	036	C	029	029	028	034	032	030	027	023	032	027	023	026
	035	C	038	050	028	052	C	042	032	024	030	033	022	032	030
	034	048	046	050	045	050	035	028	028	028	033	027	028	028	031
	034	042	039	050	040	032	047	C	027	022	028	033	026	028	021
	025	037	034	033	027	029	020	020	021	027	025	023	020	019	020
S	E025S	033	050	052	039	036	034	024	021	E026S	025	035	023	021	028
	022	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	C	035	048	050	052	047	034	031	030	E025S	025	026	028	026	023
S	030	035	045	036	036	033	024	029	024	026	026	029	021	024	027
	028	027	039	045	049	032	024	032	027	028	033	026	031	024	023
	034	027	048	041	045	037	033	026	029	024	018	027	027	025	025
	032	035	039	039	040	035	032	028	027	025	025	026	023	024	023
	24	24	26	23	19	22	25	25	25	23	23	19	19	19	19
	034	041	046	050	045	044	035	032	030	027	028	032	028	026	028
	025	031	034	035	032	032	025	024	024	024	019	020	020	020	019
	9	10	12	15	13	12	10	8	6	3	9	12	8	6	9

B

Characteristic: f_{EF2}

IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

January 1965

Observed at:

Bangkok, Thailand

Lat. 13.73° N, Long. 100.57° E
 105° E Mean Time (GMT + 7 hours)

Hour Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
1	C	C	C	C	C	C	C	058*	062	059	057	056	060		
2	027	035	025	024	024	021	B	038	052	066	061	C	C	C	
3	C	C	C	C	C	C	C	C	C	C	074	067	U037R		
4	C	C	C	C	C	C	C	C	076	076	065	067	070	C	
5	C	C	C	C	C	C	C	C	070	072	065	062	C	0	
6	C	C	C	C	C	C	C	C	C	C	074	065	071	0	
7	030	031	030	024	016	A	B	044	062	079	078	076	071H	070	0
8	J031S	032	030	019	017	A	B	U039L	065	080	087	R	C	068	0
9	030	028	024	020	S	U020R	B	041	063	072	069	058	059	058	0
10	028	024	025	C	C	C	C	C	C	U080L	072	C	C	C	
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
12	C	C	C	C	022	R	B	044	062	077	077	076	066	073	0
13	032	021	018	018	B	B	B	040	067	073	083	C	C	076	J0
14	037	J033S	036	044	031	030	024	038	055	072	083	076	072	B	0
15	045	046	039	027	018	B	B	042	065	075	083	081	072	069	
16	R	026	025	023	B	B	B	041	064	076	068	063	U066R	R	
17	R	036	R	B	B	B	B	B	058	065	082	U075R	U064H	059	
18	C	C	C	C	C	C	C	C	062	C	083	082	U076S	R	
19	C	C	C	C	C	C	C	C	078	C	084	076	077	0	
20	046	046	U048R	J031S	J019R	B	B	040	059	075	R	070	R	073	
21	C	C	C	C	C	C	C	C	068	088	C	064H	065	0	
22	049	042	U045R	042	J037S	029	J026S	044	U060S	065	087	087	U080R	U074R	D0
23	059	059	058	046	030	026	022	040	067	078	091	092	084	080	0
24	050	053	047	044	038	025	B	043	062	078	091	092	075	073	0
25	040	036	028	022	B	B	B	043	062	074	085	083	067H	065	0
26	036	036	035	031	023	019	B	042	063	068	081	084	R	078	0
27	029	031	027	025	B	B	B	042	068	073	093	080	071H	065	0
28	036	034	025	021	019	B	B	044	069	084	087	078	073	073	0
29	J041S	032	028	027	U020R	B	B	042	075	084	082	088	C	U089R	0
30	037	043	040	022	B	B	B	043	062	076	100	085	085	U079R	0
31	046	041	041	042	022	B	B	040	065	081	086	082	080	U071R	0
Median Count	037	035	030	025	022	025	024	042	062	075	083	077	071	071	C
UQ	046	043	040	042	030	029	025	043	065	078	087	084	076	075	0
LQ	030	031	025	022	020	020	023	040	060	070	077	074	066	066	0
QR	16	12	15	20	10	9	2	3	5	8	10	10	10	9	0

* Tabulation of 058 = 5.8 Mc.

A

IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

January 1965

	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
*	062	059	057	056	060	C	072	071	072	072	059	S	042	041	036
	066	061	C	C	C	C	C	C	C	C	C	C	C	C	C
	C	C	074	067	067	U067R	C	C	C	C	C	C	C	C	C
	076	076	065	067	070	072	073	073	075	068	C	C	C	C	C
	070	072	065	062	C	072	C	C	C	C	C	C	C	C	C
	C	C	074	065	071	069	070	072	076	078	075	069	059	J050S	034
	079	078	076	071H	070	071	073	078	080	078	087	073	053	042	032
	080	087	R	C	068	072	077	080	088	087	064	J063S	J049S	049	042
	072	069	058	059	058	063	069	073	080	085	085	065	052	044	032
	C	U080L	072	C	C	C	C	C	C	C	C	C	C	C	C
	C	C	C	C	C	C	078	C	C	C	C	C	C	C	C
	077	077	076	066	073	071	067	065	066	071	069	063	C	C	C
	073	083	C	C	076	J069S	R	071	079	081	075	UC 38R	071	062	049
	072	083	076	072	B	065	066	069	075	081	073	070	065	054	051
	075	083	081	072	069	R	078	U080R	079	072	072	064	061	056	047
	076	068	063	U066R	R	R	074	076	074	R	068	B	054	B	B
	065	082	U075R	U064R	059	C	R	P	072	076	066	U060S	062	C	C
	C	083	082	U076S	R	C	082	085	078	076	C	C	C	C	C
	078	C	084	076	077	-	076	082	080	077	076	066	057	053	U048S
	075	R	075	R	J73	R	080	084	086	075	065	C	C	C	C
	068	088	C	064H	065	166	064	071	080	077	069	067	058	051	U048S
	065	087	087	U080R	U074R	D066R	C	D085P	086	078	080	U072R	062	064	062
	078	091	092	084	080	082	R	075	076	077	073	J071S	066	058	048
	078	091	092	075	073	072	068	U067R	069	077	075	062	062	060	050
	074	085	083	067H	065	066H	067	068	075	082	081	068	062	056	044
	068	081	084	R	078	079	074	080	077	079	082	074	R	J055R	036
	073	093	080	071H	065	056	058	061	066	073	077	063	051	051	040
	084	087	078	073	073	085	078	072	070	073	069	070	061	053	051
	084	082	088	086	U089R	080	076	072	067	066	067	066	042	056	040
	076	100	085	085	U079R	073	071	069	072	072	072	071	066	058	045
	081	086	082	080	U071R	066	064	066	066	069	067	063	060	051	045
	075	083	077	071	071	071	073	072	075	077	073	067	061	053	045
	26	26	26	24	24	21	23	25	26	25	24	21	21	20	20
	078	087	084	076	075	074	077	080	079	078	077	071	062	057	048
	070	077	074	066	066	066	067	069	072	072	067	063	054	051	038
	8	10	10	10	9	8	10	11	7	6	10	8	8	6	10

B

Characteristic: M(3000)F2

IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

January 1965

Observed at:

Bangkok, Thailand

Lat. 13.73° N, Long 100.57° E 105° E Mean Time (GMT + 7 hours)

Hour Date \	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
1	C	C	C	C	C	C	C	C	300*	280	280	240	260	265	C
2	330	335	310	325	320	350	B	340	285	275	295	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	260	260	U235R	C
4	C	C	C	C	C	C	C	C	C	300	280	280	270	255	26
5	C	C	C	C	C	C	C	C	C	270	265	250	260	C	26
6	C	C	C	C	C	C	C	C	C	C	300	280	270	25	25
7	350	360	340	370	360	A	B	350	340	325	320	290	250H	235	25
8	S	350	365	335	350	A	B	U340L	340	360	350	R	C	245	27
9	350	320	330	335	S	U335R	B	310	290	270	265	280	260	250	25
10	300	300	320	C	C	C	C	C	C	C	U275L	250	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	320	R	B	350	350	330	350	300	285	265	26
13	345	340	340	335	B	B	B	325	340	330	325	C	C	260	S
14	330	S	320	350	330	335	345	320	300	285	305	290	260	260	25
15	335	340	340	355	350	B	B	335	340	315	305	300	295	280	R
16	R	325	330	380	B	B	B	350	330	315	295	300	U270R	R	R
17	R	340	B	B	B	B	B	355	335	320	U270R	U265R	265	C	C
18	C	C	C	C	C	C	C	C	345	C	205	280	U290S	R	C
19	C	C	C	C	C	C	C	C	C	320	C	290	300	265	25
20	330	330	U345R	S	R	B	B	340	335	320	R	290	R	295	R
21	C	C	C	C	C	C	C	C	C	330	330	C	300H	280	240
22	360	350	U295R	315	S	335	S	340	U345S	320	315	300	U270R	U255R	R
23	315	330	350	355	340	320	310	320	320	330	315	300	290	295	28
24	325	330	350	355	370	350	B	340	330	330	315	290	270	265	25
25	375	360	360	350	B	B	B	325	350	335	325	305	275H	240	23
26	350	320	350	310	365	340	B	360	350	350	350	320	R	280	28
27	355	320	380	355	B	B	B	350	335	335	310	255H	245	26	26
28	350	370	370	340	330	B	B	340	310	310	300	290	290	270	27
29	S	360	350	360	U330R	B	B	340	335	315	330	310	290	U250R	26
30	330	350	350	350	B	B	B	330	330	330	335	310	290	U265R	26
31	350	335	335	380	350	B	B	330	320	320	310	300	270	U245R	26
Median Count	345	338	342	350	345	335	-	340	335	320	315	290	270	263	26
	17	20	20	18	12	7	2	20	23	26	26	26	24	24	1
UQ	350	350	350	355	355	350	-	345	345	330	330	300	290	267	26
LQ	330	328	330	335	330	335	-	328	320	310	295	280	260	248	25
QR	20	22	20	20	25	15	-	17	25	20	35	20	30	19	1

* Tabulation of 300 = factor of 3.0.

IONOSPHERIC DATA

Step: 1 Mc to 25 Mc in 0.5 minute

January 1965

09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
280	280	240	260	265	C	290	320	320	355	350	S	330	360	380
275	295	C	C	C	C	C	C	C	C	C	C	C	C	C
C	C	260	260	U235R	C	C	C	C	C	C	C	C	C	C
300	280	280	270	255	265	270	300	315	330	C	C	C	C	C
270	265	250	260	C	260	C	C	C	C	C	C	C	C	C
C	C	300	280	270	255	270	300	325	320	350	340	330	S	360
325	320	290	250H	235	250	275	300	320	330	345	360	330	360	360
360	350	R	C	245	270	275	300	310	350	350	S	S	350	370
270	255	280	260	250	255	270	285	310	325	340	340	350	360	360
C	U275L	250	C	C	C	C	C	C	C	C	C	C	C	C
C	C	C	C	C	C	275	C	C	C	C	C	C	C	C
330	350	300	285	265	260	250	250	260	320	320	335	C	C	C
330	325	C	C	260	S	R	245	285	310	310	U305R	310	290	345
285	305	290	260	B	255	240	280	290	330	335	345	335	340	340
315	305	300	295	260	R	295	U325R	325	335	330	325	310	340	350
315	295	300	U270R	R	R	280	305	305	R	325	B	320	B	B
335	320	U270R	U265R	265	C	R	R	290	325	340	U355S	320	C	C
C	295	280	U290S	R	C	280	295	275	250	C	C	C	C	C
320	C	290	300	265	250	270	310	320	320	340	340	320	320	U325S
320	R	290	R	295	R	305	310	300	300	310	C	C	C	C
330	330	C	300 ¹	280	240	270	300	320	315	340	330	335	320	U320S
320	315	300	U270R	U255R	R	C	R	305	300	305	U320R	305	310	310
330	315	300	290	295	285	R	270	295	300	310	S	330	320	340
330	315	290	270	265	255	260	U255R	280	310	335	320	315	320	355
335	325	305	275H	240	235H	270	280	290	315	330	360	355	345	375
350	350	320	R	280	285	285	295	310	315	340	370	R	R	360
335	335	310	255H	245	265	235	265	255	310	330	350	360	310	330
310	300	290	290	270	270	260	260	280	285	310	335	335	330	355
315	330	310	290	U250R	260	280	255	270	280	290	295	320	340	330
330	335	310	290	U265R	265	250	265	275	305	310	325	330	350	360
320	310	300	270	U245R	260	270	250	255	290	310	315	340	340	345
320	315	290	270	263	260	270	270	297	315	330	335	325	340	358
26	26	26	24	24	19	23	24	26	25	24	19	20	18	20
330	330	300	290	267	265	280	290	315	333	340	350	330	350	365
310	295	280	260	248	255	260	260	280	300	310	320	315	320	340
20	35	20	30	19	10	20	30	35	33	30	30	15	30	25

Characteristic: h'F2

IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

January 1965

Observed at:

Bangkok, Thailand

Lat. 13.73° N, Long. 100.57° E

105°E Mean Time (GMT + 7 hours)

Hour Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
1	-	-	-	-	-	-	-	C	L	350*	410	320	410	C	
2	-	-	-	-	-	-	-	L	L	337	320	C	C	C	C
3	-	-	-	-	-	-	-	C	C	C	345	372	L	C	C
4	-	-	-	-	-	-	-	C	C	L	320	340	368	380	370
5	-	-	-	-	-	-	-	C	C	U330L	350	L	390	C	380
6	-	-	-	-	-	-	-	C	C	C	305	370	360	L	
7	-	-	-	-	-	-	-	L	L	309	312	350	365	L	373
8	-	-	-	-	-	-	-	L	L	283	270	300H	C	L	352
9	-	-	-	-	-	-	-	L	L	L	U350L	L	U420S	L	392
10	-	-	-	-	-	-	-	C	C	C	342	C	C	C	C
11	-	-	-	-	-	-	-	C	C	C	C	C	C	C	C
12	-	-	-	-	-	-	-	L	L	304	300	320	330	380	370
13	-	-	-	-	-	-	-	L	270	290	290	C	C	350	E380A
14	-	-	-	-	-	-	-	L	L	320	320	320	360	B	385
15	-	-	-	-	-	-	-	L	U270L	310	315	315	345	380	365
16	-	-	-	-	-	-	-	B	L	315	363	372	E380B	E400B	E400I
17	-	-	-	-	-	-	-	B	269	290	320	338	370	E404C	C
18	-	-	-	-	-	-	-	C	L	C	319	350	335	350	C
19	-	-	-	-	-	-	-	C	C	300	C	345	340	340	359
20	-	-	-	-	-	-	-	L	280	310	320	330	333	348	330
21	-	-	-	-	-	-	-	C	C	292	290	C	355	360	418
22	-	-	-	-	-	-	-	L	L	290	320	330	340	360	L
23	-	-	-	-	-	-	-	L	L	289	300	322	330	350	348
24	-	-	-	-	-	-	-	L	L	299	320	309	358	380	349
25	-	-	-	-	-	-	-	L	260	275	300	335	350H	E400A	E383A
26	-	-	-	-	-	-	-	240	255	270	285	318	360	340	320
27	-	-	-	-	-	-	-	L	L	299	282	275	E375B	417	L
28	-	-	-	-	-	-	-	L	L	U300L	300	318	340	370	355
29	-	-	-	-	-	-	-	L	L	270	290	310	L	370	362
30	-	-	-	-	-	-	-	L	L	290	275	303	337	349	355
31	-	-	-	-	-	-	-	L	L	300	292	310	350	415	383
Median Count	-	-	-	-	-	-	-	-	270	299	319	322	355	370	370
	-	-	-	-	-	-	-	1	6	23	26	25	25	22	21
UQ	-	-	-	-	-	-	-	-	270	310	320	344	370	400	382
LQ	-	-	-	-	-	-	-	-	260	290	292	310	340	350	354
QR	-	-	-	-	-	-	-	-	10	20	28	34	30	50	28

* Tabulation of 350 = 350 km.

A

IONOSPHERIC DATA

sweep: 1 Mc to 25 Mc in 0.5 minute

January 1965

09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
L	350*	410	320	410	C	320	280	L	-	-	-	-	-	-
337	320	C	C	C	C	C	C	C	-	-	-	-	-	-
C	C	345	372	L	C	C	C	C	-	-	-	-	-	-
L	320	340	368	380	370	L	309	260	-	-	-	-	-	-
U330L	350	L	390	C	380	C	C	C	-	-	-	-	-	-
	C	C	305	370	360	L	L	255	-	-	-	-	-	-
309	312	350	365	L	373	330	U300L	L	-	-	-	-	-	-
283	270	300H	C	L	352	350		L	365	L	-	-	-	-
L	U350L	L	U420S	L	392	340	L	289	L	-	-	-	-	-
C	L	342	C	C	C	C	C	C	-	-	-	-	-	-
C	C	C	C	C	C	L	C	C	-	-	-	-	-	-
304	300	320	330	380	370	380	L	L	-	-	-	-	-	-
290	290	C	C	350	E380A	L	L	L	-	-	-	-	-	-
320	320	320	360	B	385	365	L	L	-	-	-	-	-	-
310	315	315	345	380	365	345	285	275	-	-	-	-	-	-
315	363	372	E380B	E400B	E400B	E350B	338	300	-	-	-	-	-	-
290	320	338	370	E404C	C	E370A	349	E290A	-	-	-	-	-	-
C	319	350	335	350	C	340	311	L	-	-	-	-	-	-
300	C	345	340	340	359	320	305	260	L	-	-	-	-	-
310	320	330	333	348	330	340	293	268	-	-	-	-	-	-
292	290	C	355	360	418	L	L	263	-	-	-	-	-	-
290	320	330	340	360	L	C	315	L	-	-	-	-	-	-
289	300	322	330	350	348	L	L	L	-	-	-	-	-	-
299	320	309	358	380	349	L	L	L	-	-	-	-	-	-
275	300	335	350H	E400A	E383A	350	330	L	-	-	-	-	-	-
270	285	318	360	340	320	330	E305A	260	-	-	-	-	-	-
299	282	275	E375B	417	L	L		L	-	-	-	-	-	-
U300L	300	318	340	370	355	330	L	L	-	-	-	-	-	-
	270	290	310	L	370	362	340	L	L	-	-	-	-	-
290	275	303	337	349	355	L	L	L	-	-	-	-	-	-
300	292	310	350	415	383	350	L	L	-	-	-	-	-	-
299	319	322	355	370	370	340	307	268	-	-	-	-	-	-
23	26	25	25	22	21	17	12	11	-	-	-	-	-	-
310	320	344	370	400	382	350	323	290	-	-	-	-	-	-
290	292	310	340	350	354	330	397	260	-	-	-	-	-	-
20	28	34	30	50	28	20	26	30	-	-	-	-	-	-

BB

Characteristic: h'F

IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

January 1965

Observed at:

Bangkok, Thailand

Lat. 13.73° N, Long. 100.57° E

105° E Mean Time (GMT + 7 hours)

Hour Date \	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
1	C	C	C	C	C	C	C	C	230*	E210A	200	E240A	200	190	C
2	245	E240S	E283C	E265B	275	E255S	B	246	230	U205S	185	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	E210A	182	163	C
4	C	C	C	C	C	C	C	C	C	195H	190	200	193	175	188
5	C	C	C	C	C	C	C	C	C	230	E240A	E200A	215	C	E190B
6	C	C	C	C	C	C	C	C	C	C	C	190	185	183H	180
7	E240A	230	240	230	250	A	B	240	223	209	E208A	190	190	189	180
8	245	230	225	E240B	235	A	B	240	220	E203S	195	180H	C	175	163H
9	240	280	E270A	E270A	E280S	E270S	B	E270S	240	E229S	210	U219S	E200S	E250B	E190B
10	E309S	E311B	280	C	C	C	C	C	C	C	190	200	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	E270B	E275B	B	245	245	220	209H	220H	E220B	E225B	E200B
13	246	255	300	E278B	B	B	U260S	U229S	225	210				200	A
14	235	E340B	350	248	260	250	310	260	230	220	208	E200B	200	B	185
15	225	250	240	240	E250S	B	B	E255B	230	E220B	200	200	B	B	B
16	E260B	287	275	240	E250S	B	B	260	E260B	260	E252B	E200B	B	B	B
17	E250B	E260B	E265B	B	B	B	B	B	E255C	E230C	E205C	E210C	220	C	C
18	C	C	C	C	C	C	C	C	250	C	E190B	E235B	219	B	C
19	C	C	C	C	C	C	C	C	280	C	290	B	E213B	189H	
20	250	229	250	200	B	B	B	250	E243B	219	E300B	E245	B	E210B	E200A
21	C	C	C	C	C	C	C	C	C	220	E204A	C	E230A	E200A	E300A
22	232	230	263	E269B	230	E270B	E280B	245	235	E220B	E230B	E200B	E210B	E220A	E300B
23	260	259	230	219	239	E280B	E350B	258	240	229	220	E240B	E240B	E230B	E210B
24	240	229	220	230	224	E259B	B	250	240	E220B	E200B	223	240	E200B	E220A
25	230	220	220	E235B	B	B	B	250	230	225	218	E220A	208	A	E220A
26	235	235	230	220	238	262	B	B	230	U205S	Z00	E210B	185	210	E200B
27	240	225	220	220	B	B	B	250	229	226	U218C	210	E216B	E225C	E200C
28	230	220	210	230	E240C	B	B	E240S	E218S	E200C	185H	E200B	210	E206B	
29	230	E240B	249	226	U240B	B	B	235	240	E231A	E220A	E215A	E210A	E205A	A
30	E252A	232	200	E240B	B	B	B	E253S	229	U218S	218	205H	E215B	E205A	210
31	232	225	235	212	E240S	B	B	250	238	221	210	208	192	183	E190A
Median Count	240 21	235 21	240 21	235 19	240 14	263 8	310 3	250 19	230 23	220 26	208 27	210 27	205 22	200 21	200 20
UQ	248	259	272	248	260	277	330	258	240	229	218	220	219	216	210
LQ	232	229	222	220	238	260	295	245	229	210	200	200	193	186	189
QR	16	30	50	28	22	17	35	13	11	19	18	20	26	30	21

* Tabulation of 230 = 230 km.

A

IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

January 1965

	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
E210A	200	E240A	200	190	C	E225A	E229A	230	229	210	E250A	250	230	220	
U205S	185	C	C	C	C	C	C	C	C	C	C	C	C	C	
C	C	E210A	182	163	C	C	C	C	C	C	C	C	C	C	
195H	190	200	193	175	188	E200A	E220B	230	230	C	C	C	C	C	
220	E240A	E200A	215	C	E190B	C	C	C	C	C	C	C	C	C	
C	C	190	185	183H	180	190H	220	E230A	243	240	219	230	229	220	
209	E208A	190	190	189	180	248	E210B	230	230	215	200	220	220	220	
E203S	195	180H	C	175	163H	240	E225A	250	230	220	235	E250A	240	225	
E229S	210	U219S	E200S	E250B	E190B	183H	229	E250B	242	223	210	229	230	E230B	
C	190	200	C	C	C	C	C	C	C	C	C	C	C	C	
C	C	C	C	C	C	228	C	C	C	C	C	C	C	C	
220	209H	220H	E220B	E225B	E200B	E190B	E230B	E240B	245	220	240	C	C	C	
225	210	C	C	200	A	E220A	E228A	E250B	250	259	250	F270A	243	235	
220	208	E200B	200	B	185	E170B	238	230	250	240	220	235	245	250	
E220B	200	200	B	B	B	E245B	B	B	250	240	260	240	250	255	
260	E252B	E200B	B	B	B	B	240	E290B	250	250	B	E263B	B	B	
E230C	E205C	E210C	220	C	C	A	E260A	A	252	220	220	E260C	C	C	
C	E190B	E235B	219	B	C	E185B	E222A	E250A	270	C	C	C	C	C	
280	C	290	B	E213B	189H	239	230	231	240	240	240	240	250	E250B	
219	E300B	E245B	B	E210B	E200A	E200A	E200A	220	223	249	245	C	C	C	
220	E204A	C	E230A	E200A	E300A	E200B	E280B	240	234	232	230	230	E270A	245	
E220B	E220B	E200B	E210B	E220A	E300B	C	B	248	252	250	240	250	250	250	
229	220	E240B	E240B	E230B	E210B	E210B	E240A	E230A	250	255	240	E250A	230	239	
E220B	E200B	223	240	E200B	E220A	192	E218A	E230B	250	235	245	E250B	250	240	
225	218	E220A	208	A	E220A	180	E225A	E240A	250	230	225	230	240	218	
U205S	200	E210B	185	210	E200B	200	A	A	E240S	244	218	220	E250A	240	
226	U218C	210	E216B	E225C	E200C	195	E200C	230	250	230	215	225	230	235	
E200C	185H	E200B	E200B	210	E206B	200	200	E240B	248	260	E230B	E225B	230	235	
E231A	E220A	E215A	E210A	E205A	A	E205A	E225A	E250A	255	E263B	E253B	237	226	E250B	
U218S	218	205H	E215B	E205A	210	192	E195B	233	265	E270B	240	239	230	229	
221	210	208	192	183	E190A	E185A	E239A	230	253	240	240	237	230	U239A	
220	208	210	210	205	200	205	225	233	250	240	238	238	235	237	
26	27	27	22	21	20	24	23	23	26	24	22	22	20	20	
229	218	220	219	216	210	228	238	250	250	250	240	250	250	248	
210	200	200	193	186	189	190	220	230	240	226	220	230	230	227	
19	18	20	26	30	21	38	18	20	10	24	20	20	20	21	



Characteristic: foF1

IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

January 1965

Observed at:

Bangkok, Thailand

Lat. 13.73° N, Long. 100.57° E
 105° E Mean Time (GMT + 7 hours)

Hour Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13
1	-	-	-	-	-	-	-	C	L	L	U043L	044*	043	044
2	-	-	-	-	-	-	-	L	L	U041L	042	C	C	C
3	-	-	-	-	-	-	-	C	C	C	043	043	R	R
4	-	-	-	-	-	-	-	C	C	L	U042L	U044L	044	044
5	-	-	-	-	-	-	-	C	C	U042L	U043L	U044L	R	C
6	-	-	-	-	-	-	-	C	C	C	044	044	045H	U
7	-	-	-	-	-	-	-	L	L	L	U045L	045	044	045
8	-	-	-	-	-	-	-	L	L	L	U045L	044	C	044
9	-	-	-	-	-	-	-	L	L	L	U044L	U044S	L	U
10	-	-	-	-	-	-	-	C	C	C	044	C	C	C
11	-	-	-	-	-	-	-	C	C	C	C	C	C	C
12	-	-	-	-	-	-	-	L	L	L	044H	L	043	043
13	-	-	-	-	-	-	-	L	L	L	L	L	044	044
14	-	-	-	-	-	-	-	L	L	L	042	043	043	B
15	-	-	-	-	-	-	-	L	L	L	043	B	B	B
16	-	-	-	-	-	-	-	B	L	L	B	B	B	B
17	-	-	-	-	-	-	-	B	L	U041L	041	U042R	R	C
18	-	-	-	-	-	-	-	C	C	U042L	U045L	044	B	B
19	-	-	-	-	-	-	-	C	C	L	043	B	045	045
20	-	-	-	-	-	-	-	L	L	U042L	L	U044R	B	043
21	-	-	-	-	-	-	-	C	C	L	U043L	C	043	043
22	-	-	-	-	-	-	-	L	L	U042L	U044L	045	R	R
23	-	-	-	-	-	-	-	L	L	L	043	U044L	U045L	044
24	-	-	-	-	-	-	-	L	L	L	U043L	044	044	045
25	-	-	-	-	-	-	-	L	L	L	U043L	044	043	A
26	-	-	-	-	-	-	-	B	L	L	042	045	044	043
27	-	-	-	-	-	-	-	L	L	L	U042L	042	R	045
28	-	-	-	-	-	-	-	L	L	L	U043L	U045L	U042R	044
29	-	-	-	-	-	-	-	B	L	L	U044L	U045L	045	044
30	-	-	-	-	-	-	-	L	L	L	U043L	U045L	043	U045L
31	-	-	-	-	-	-	-	L	L	L	043	044	044	043
Median	-	-	-	-	-	-	-	-	-	-	042	043	044	044
Count	-	-	-	-	-	-	+	-	-	-	4	19	26	18
UQ	-	-	-	-	-	-	-	-	-	-	042	043	044	045
LQ	-	-	-	-	-	-	-	-	-	-	041	042	043	043
QR	-	-	-	-	-	-	-	-	-	-	1	1	1	2

* Tabulation of 044 = 4.4 Mc.

A

IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

January 1965

	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
L	U043L	044*	043	044	C	L	L	L	-	-	-	-	-	-	-
U041L	042	C	C	C	C	C	C	C	-	-	-	-	-	-	-
C	C	043	043	R	C	C	C	C	-	-	-	-	-	-	-
L	U042L	U044L	044	044	044	L	L	L	-	-	-	-	-	-	-
U042L	U043L	U044L	R	C	048	C	C	C	-	-	-	-	-	-	-
C	C	044	044	045H	U044L	L	L	L	-	-	-	-	-	-	-
L	U045L	045	044	045	U043L	U043L	L	L	-	-	-	-	-	-	-
L	U045L	044	C	044	U044L	U044L	L	L	L	-	-	-	-	-	-
L	L	U044L	U044S	L	U043L	U042L	L	L	L	-	-	-	-	-	-
C	L	044	C	C	C	C	C	C	C	-	-	-	-	-	-
C	C	C	C	C	C	L	C	C	-	-	-	-	-	-	-
L	L	044H	L	043	042	L	L	L	-	-	-	-	-	-	-
L	L	C	C	043	A	L	L	L	-	-	-	-	-	-	-
L	042	043	043	B	042	L	L	L	-	-	-	-	-	-	-
L	L	043	B	B	B	U042L	B	B	-	-	-	-	-	-	-
L	L	B	B	B	B	B	L	L	-	-	-	-	-	-	-
U041L	041	U042R	R	C	C	A	L	A	-	-	-	-	-	-	-
C	U042L	U045L	044	B	C	U043L	L	L	-	-	-	-	-	-	-
L	C	043	B	045	043	U042L	L	L	-	-	-	-	-	-	-
U042L	L	U044R	B	043	042	043	L	L	-	-	-	-	-	-	-
L	U043L	C	043	043	044A	L	L	L	-	-	-	-	-	-	-
L	U042L	U044L	045	R	L	C	B	L	-	-	-	-	-	-	-
L	043	U044L	U045L	044	043	043	L	L	-	-	-	-	-	-	-
L	L	U043L	044	045	044	U043L	L	L	-	-	-	-	-	-	-
L	U043L	044	043	A	042	041	L	L	-	-	-	-	-	-	-
L	042	045	044	043	043	041	A	L	-	-	-	-	-	-	-
L	U042L	042	R	045	043	U043L	L	L	-	-	-	-	-	-	-
L	U043L	U045L	U042R	044	047	042	L	I	-	-	-	-	-	-	-
L	U044L	U045L	045	044	A	L	L	L	-	-	-	-	-	-	-
L	U043L	U045L	043	U045L	044	U043L	L	L	-	-	-	-	-	-	-
L	043	044	044	043	044	U043L	L	L	-	-	-	-	-	-	-
042	043	044	043	044	043	043	-	-	-	-	-	-	-	-	-
4	19	26	18	18	19	15	-	-	-	-	-	-	-	-	-
042	043	044	043	045	044	043	-	-	-	-	-	-	-	-	-
041	042	043	042	043	043	042	-	-	-	-	-	-	-	-	-
1	1	1	1	2	1	1	-	-	-	-	-	-	-	-	-

Characteristic: M(3000)F1

IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

January 1965

Observed at:

Bangkok Thailand

Bangkok, Thailand
Lat. 13.73° N, Long. 100.57° E
 105° E Mean Time (GMT + 7 hours)

Hour Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
1	-	-	-	-	-	-	-	C	L	L	U380L	410*	400	395	0
2	-	-	-	-	-	-	-	L	L	U390L	410	C	C	C	0
3	-	-	-	-	-	-	-	C	C	C	415	430	R	0	0
4	-	-	-	-	-	-	-	C	C	L	U400L	U400L	410	400	395
5	-	-	-	-	-	-	-	C	C	U360L	U385L	U390L	R	C	4
6	-	-	-	-	-	-	-	C	C	C	400	410	415H	U400	0
7	-	-	-	-	-	-	-	L	L	U370L	385	410	405	U4	0
8	-	-	-	-	-	-	-	L	L	L	400	C	425	U380	0
9	-	-	-	-	-	-	-	L	L	L	U380L	U410S	L	U370	0
10	-	-	-	-	-	-	-	C	C	C	390	C	C	C	0
11	-	-	-	-	-	-	-	C	C	C	C	C	C	C	0
12	-	-	-	-	-	-	-	L	L	L	370H	L	400	405	405
13	-	-	-	-	-	-	-	L	L	L	L	C	C	420	0
14	-	-	-	-	-	-	-	L	L	L	385	400	420	B	420
15	-	-	-	-	-	-	-	L	L	L	410	B	B	B	1
16	-	-	-	-	-	-	-	B	L	L	B	B	B	B	1
17	-	-	-	-	-	-	-	B	L	U365L	390	U395R	R	C	0
18	-	-	-	-	-	-	-	C	C	U370L	U390L	375	B	0	0
19	-	-	-	-	-	-	-	C	C	L	C	400	B	390	390
20	-	-	-	-	-	-	-	L	L	U360L	L	U375R	B	405	405
21	-	-	-	-	-	-	-	C	C	L	U375L	C	400	420	0
22	-	-	-	-	-	-	-	L	L	L	U385L	U380L	370	R	1
23	-	-	-	-	-	-	-	L	L	L	375	U375L	U360L	375	390
24	-	-	-	-	-	-	-	L	L	L	L	U385L	395	385	390
25	-	-	-	-	-	-	-	L	L	L	U380L	390	415	A	415
26	-	-	-	-	-	-	-	B	L	L	400	385	415	420	420
27	-	-	-	-	-	-	-	L	L	L	U380L	400	R	390	390
28	-	-	-	-	-	-	-	L	L	L	U385L	U375L	U390R	390	390
29	-	-	-	-	-	-	-	B	L	L	U380L	U390L	390	390	0
30	-	-	-	-	-	-	-	L	L	L	U375L	U380L	405	U375L	390
31	-	-	-	-	-	-	-	L	L	L	395	410	420	430	390
Median Count	-	-	-	-	-	-	-	-	-	362	383	390	408	400	390
UQ	-	-	-	-	-	-	-	-	-	377	390	400	415	420	420
LQ	-	-	-	-	-	-	-	-	-	360	375	380	390	390	390
QR	-	-	-	-	-	-	-	-	-	17	15	20	25	30	30

* Tabulation of 410 = factor of 4.1.

A

IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

January 1965

09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
L	U380L	410*	400	395	C	L	L	L	-	-	-	-	-	-
U390L	410	C	C	C	C	C	C	C	-	-	-	-	-	-
C	C	415	430	R	C	C	C	C	-	-	-	-	-	-
L	U400L	U400L	410	400	390	L	L	L	-	-	-	-	-	-
U360L	U385L	U390L	R	C	410	C	C	C	-	-	-	-	-	-
C	C	400	410	415H	U400L	L	L	L	-	-	-	-	-	-
L	U370L	385	410	405	U410L	U365L	L	L	-	-	-	-	-	-
L	L	400	C	425	U380L	U355L	L	L	L	-	-	-	-	-
L	L	U380L	U410S	L	U370L	U370L	L	L	L	-	-	-	-	-
C	L	390	C	C	C	C	C	C	-	-	-	-	-	-
C	C	C	C	C	C	L	C	C	-	-	-	-	-	-
L	L	370H	L	400	400	L	L	L	-	-	-	-	-	-
L	L	C	C	420	A	I	L	L	-	-	-	-	-	-
L	385	400	420	B	420	L	L	L	-	-	-	-	-	-
L	L	410	B	B	B	U365L	B	B	-	-	-	-	-	-
L	L	B	B	B	B	B	L	L	-	-	-	-	-	-
U365L	390	U395R	R	C	C	A	L	A	-	-	-	-	-	-
C	U370L	U390L	375	8	C	U360L	L	L	-	-	-	-	-	-
L	C	400	B	390	395	U390L	L	L	L	-	-	-	-	-
U360L	L	U375R	B	405	410	365	L	L	-	-	-	-	-	-
L	U375L	C	400	420	A	L	L	L	-	-	-	-	-	-
L	U385L	U380L	370	R	L	C	B	L	-	-	-	-	-	-
L	375	U375L	U360L	375	390	380	L	L	-	-	-	-	-	-
L	L	U385L	395	385	390	U370L	L	L	-	-	-	-	-	-
L	U380L	390	415	A	415	405	L	L	-	-	-	-	-	-
L	400	385	415	420	410	400	A	L	-	-	-	-	-	-
L	U380L	400	R	390	395	U370L	L	L	-	-	-	-	-	-
L	U385L	U375L	U390R	390	390	415	L	L	-	-	-	-	-	-
L	U380L	U390L	390	390	A	L	L	L	-	-	-	-	-	-
L	U375L	U380L	405	U375L	390	U395L	L	L	-	-	-	-	-	-
L	395	410	420	430	385	U380L	L	L	-	-	-	-	-	-
362	383	390	408	400	395	370	-	-	-	-	-	-	-	-
4	18	26	18	18	18	15	-	-	-	-	-	-	-	-
377	390	400	415	420	410	395	-	-	-	-	-	-	-	-
360	375	380	390	390	390	365	-	-	-	-	-	-	-	-
17	15	20	25	30	20	30	-	-	-	-	-	-	-	-

Characteristic: foE

JONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

January 1965

Observed at:

Bangkok, Thailand

Lat. 13.73° N, Long. 100.57° E

105° E Mean Time (GMT + 7 hours)

Hour Date \	00	01	02	03	04	05	06	07	08	09	10	11	12	13
Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13
1	-	-	-	-	-	-	-	C	B	A	R	A	A	B
2	-	-	-	-	-	-	-	B	B	A	B	C	C	C
3	-	-	-	-	-	-	-	C	C	C	C	A	A	A
4	-	-	-	-	-	-	-	C	C	B	B	B	B	B
5	-	-	-	-	-	-	-	C	C	B	A	A	B	B
6	-	-	-	-	-	-	-	C	C	C	C	B	A	A
7	-	-	-	-	-	-	-	B	B	A	A	B	B	B
8	-	-	-	-	-	-	-	B	B	A	B	B	C	B
9	-	-	-	-	-	-	-	B	B	B	R	A	B	B
10	-	-	-	-	-	-	-	C	C	C	B	S	C	C
11	-	-	-	-	-	-	-	C	C	C	C	C	C	C
12	-	-	-	-	-	-	-	B	B	B	B	B	B	B
13	-	-	-	-	-	-	-	B	S	S	B	C	C	B
14	-	-	-	-	-	-	-	B	B	B	B	B	B	B
15	-	-	-	-	-	-	-	B	B	R	B	B	B	B
16	-	-	-	-	-	-	-	B	B	B	B	B	B	B
17	-	-	-	-	-	-	-	B	B	C	C	C	C	C
18	-	-	-	-	-	-	-	C	C	C	B	B	B	B
19	-	-	-	-	-	-	-	C	C	B	C	B	B	B
20	-	-	-	-	-	-	-	B	B	B	B	B	B	B
21	-	-	-	-	-	-	-	C	B	A	A	C	A	A
22	-	-	-	-	-	-	-	B	B	B	B	B	B	B
23	-	-	-	-	-	-	-	B	B	B	B	B	B	B
24	-	-	-	-	-	-	-	B	R	B	R	B	B	B
25	-	-	-	-	-	-	-	B	B	B	B	A	A	A
26	-	-	-	-	-	-	-	B	B	U290A	B	B	B	B
27	-	-	-	-	-	-	-	S	S	300	C	C	C	C
28	-	-	-	-	-	-	-	C	C	C	310	B	B	B
29	-	-	-	-	-	-	-	B	B	B	R	B	B	B
30	-	-	-	-	-	-	-	S	B	U290R	R	R	B	B
31	-	-	-	-	-	-	-	S	B	B	R	B	B	B
Median Count	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QR	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Tabulation of 265 = 2.65 Mc.

A

IONOSPHERIC DATA

cpr: 1 Mc to 25 Mc in 0.5 minute

January 1965

09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
A	R	A	A	B	C	B	A	A	-	-	-	-	-	-
A	B	C	C	C	C	C	C	C	-	-	-	-	-	-
C	C	A	A	A	C	C	C	C	-	-	-	-	-	-
B	B	B	B	A	B	A	R	B	-	-	-	-	-	-
B	A	A	B	C	B	C	C	C	-	-	-	-	-	-
C	C	B	A	A	A	335H	A	A	-	-	-	-	-	-
A	A	B	B	B	B	B	B	B	-	-	-	-	-	-
A	B	B	C	B	B	R	R	B	S	-	-	-	-	-
B	R	A	B	B	B	R	R	B	B	-	-	-	-	-
C	B	S	C	C	C	C	C	C	-	-	-	-	-	-
C	C	C	C	C	C	B	C	C	-	-	-	-	-	-
B	D	B	B	B	B	B	B	B	-	-	-	-	-	-
S	B	C	C	B	B	B	B	B	-	-	-	-	-	-
B	B	B	B	B	B	B	B	B	-	-	-	-	-	-
R	B	B	B	B	B	B	B	B	-	-	-	-	-	-
B	B	B	B	B	B	B	B	B	-	-	-	-	-	-
C	C	C	C	C	C	A	A	A	-	-	-	-	-	-
C	B	B	B	B	C	B	B	B	-	-	-	-	-	-
B	C	B	B	B	B	B	B	B	-	-	-	-	-	-
B	B	B	B	B	B	A	A	A	-	-	-	-	-	-
B	A	A	C	A	A	A	B	B	-	-	-	-	-	-
A	B	B	B	A	A	B	C	B	-	-	-	-	-	-
B	B	B	B	F	B	B	B	B	-	-	-	-	-	-
B	R	B	B	B	A	A	B	A	-	-	-	-	-	-
B	B	A	A	A	A	A	A	A	-	-	-	-	-	-
U290A	B	B	B	B	B	B	A	A	-	-	-	-	-	-
300	C	C	C	C	C	C	C	C	-	-	-	-	-	-
C	310	B	B	F	B	R	B	B	-	-	-	-	-	-
B	R	B	B	B	A	A	B	B	-	-	-	-	-	-
U290R	R	R	B	B	B	B	U300R	B	-	-	-	-	-	-
B	R	B	B	B	B	B	B	B	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	1	-	-	-	-	1	1	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Characteristic: h'F

IONOSPHERIC DATA
Sweep: 1 Mc to 25 Mc in 0.5 minute
January 1965

Observed at:

Bangkok, Thailand
Lat. 13.73° N, Long. 100.57° E
 105° E Mean Time (GMT + 7 hours)

Hour Date \	00	01	02	03	04	05	06	07	08	09	10	11	12	13
Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13
1	-	-	-	-	-	-	-	C	S	A	108*	A	A	B
2	-	-	-	-	-	-	-	B	B	A	B	C	C	C
3	-	-	-	-	-	-	-	C	C	C	C	A	A	A
4	-	-	-	-	-	-	-	C	C	B	B	B	B	A
5	-	-	-	-	-	-	-	C	C	B	119	A	B	C
6	-	-	-	-	-	-	-	C	C	C	C	B	A	A
7	-	-	-	-	-	-	-	B	B	A	111	B	B	B
8	-	-	-	-	-	-	-	B	B	103	B	B	C	B
9	-	-	-	-	-	-	-	B	P	B	119	A	B	B
10	-	-	-	-	-	-	-	C	C	C	B	S	C	C
11	-	-	-	-	-	-	-	C	C	C	C	C	C	C
12	-	-	-	-	-	-	-	B	B	B	B	B	B	B
13	-	-	-	-	-	-	-	B	113	120	B	C	C	B
14	-	-	-	-	-	-	-	B	B	B	B	B	B	B
15	-	-	-	-	-	-	-	B	B	125	B	B	B	B
16	-	-	-	-	-	-	-	B	B	B	B	B	B	B
17	-	-	-	-	-	-	-	B	B	C	C	C	C	C
18	-	-	-	-	-	-	-	C	C	C	B	B	B	B
19	-	-	-	-	-	-	-	C	C	B	C	B	B	B
20	-	-	-	-	-	-	-	B	B	E120S	B	B	B	B
21	-	-	-	-	-	-	-	C	C	E120B	B	120	C	105
22	-	-	-	-	-	-	-	B	B	B	B	B	B	A
23	-	-	-	-	-	-	-	B	B	115	E	E118B	B	B
24	-	-	-	-	-	-	-	B	B	B	B	B	B	B
25	-	-	-	-	-	-	-	B	B	B	B	A	A	A
26	-	-	-	-	-	-	-	B	B	112	B	B	B	B
27	-	-	-	-	-	-	-	S	110	115	C	C	C	C
28	-	-	-	-	-	-	-	C	C	110	B	B	B	B
29	-	-	-	-	-	-	-	B	B	S	120	B	B	B
30	-	-	-	-	-	-	-	S	B	B	120	120	E120S	B
31	-	-	-	-	-	-	-	S	B	B	115	B	B	B
Median Count	-	-	-	-	-	-	-	-	-	114	120	119	-	-
UQ	-	-	-	-	-	-	-	-	-	4	7	10	1	1
LQ	-	-	-	-	-	-	-	-	-	112	112	111	-	-
QR	-	-	-	-	-	-	-	-	-	26	8	9	-	-

* Tabulation of $108 = 108$ km.

A

IONOSPHERIC DATA

ep: 1 Mc to 25 Mc in 0.5 minute

January 1965

09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
A	108*	A	A	B	C	B	111	A	-	-	-	-	-	-
A	B	C	C	C	C	C	C	C	-	-	-	-	-	-
C	C	A	A	A	C	C	C	C	-	-	-	-	-	-
B	B	B	B	A	B	A	120	B	-	-	-	-	-	-
B	119	A	B	C	B	C	C	C	-	-	-	-	-	-
C	C	B	A	A	A	093H	A	A	-	-	-	-	-	-
A	111	B	B	B	B	B	B	B	-	-	-	-	-	-
103	B	B	C	B	B	120	R	B	S	-	-	-	-	-
B	119	A	B	B	B	112	110	B	B	-	-	-	-	-
C	B	S	C	C	C	C	C	C	-	-	-	-	-	-
C	C	C	C	C	C	B	C	C	-	-	-	-	-	-
B	B	B	B	B	B	B	B	B	-	-	-	-	-	-
120	F	C	C	B	B	B	B	B	-	-	-	-	-	-
B	B	B	B	B	B	B	B	B	-	-	-	-	-	-
125	B	B	B	B	B	B	B	B	-	-	-	-	-	-
B	B	B	B	B	B	B	B	B	-	-	-	-	-	-
C	C	C	C	C	C	C	A	A	-	-	-	-	-	-
C	B	B	B	B	C	B	B	A	-	-	-	-	-	-
E	C	B	B	B	B	B	B	B	-	-	-	-	-	-
B	B	B	B	B	F	B	A	B	-	-	-	-	-	-
E120S	120	C	105	A	A	A	B	B	B	-	-	-	-	-
B	B	B	B	A	B	B	C	B	-	-	-	-	-	-
B	B	B	B	B	B	B	E135B	B	-	-	-	-	-	-
B	E118B	B	B	B	A	B	B	A	B	-	-	-	-	-
B	B	A	A	A	A	A	A	A	A	-	-	-	-	-
112	B	B	B	B	B	B	B	A	A	-	-	-	-	-
115	C	C	C	C	C	C	C	C	C	-	-	-	-	-
C	110	B	B	B	B	B	E115C	B	B	-	-	-	-	-
B	120	B	B	B	A	A	B	B	B	-	-	-	-	-
120	120	E120S	B	B	A	A	E130B	B	B	-	-	-	-	-
B	115	B	B	B	B	B	B	B	B	-	-	-	-	-
120	119	-	-	-	-	114	120	-	-	-	-	-	-	-
7	19	1	1	-	-	4	5	-	-	-	-	-	-	-
120	120	-	-	-	-	118	133	-	-	-	-	-	-	-
112	111	-	-	-	-	103	111	-	-	-	-	-	-	-
8	9	-	-	-	-	15	22	-	-	-	-	-	-	-

Characteristic: fbEs

IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

January 1965

Observed at:

Bangkok, Thailand

Lat. 13.73° N, Long. 100.57° E
 105° E Mean Time (GMT + 7 hours)

Hour Date \	00	01	02	03	04	05	06	07	08	09	10	11	12	13	
1	C	C	C	C	C	C	C	C	0.7 ^m	033	G	041	039M	G	
2	B	B	M	B	B	B	G	B		C	G	C	C	C	
3	C	C	C	C	C	C	C	C		C	C	038M		C	
4	C	C	C	C	C	C	C	C		B	G	B		035	
5	C	C	C	C	C	C	C	C		B	039M	038M	G	C	
6	C	C	C	C	C	C	C	C		C	C	G	037	033	
7	020	M	016	M	B	A	B	B	B	033	030	035	G	G	
8	017	B	B	B	E	A	B	024	B	D029R	G	B	C	G	
9	-	M	-	014M	B	B	B	B	B	B	G	036	G	B	
10	B	B	B	C	C	C	C	C	C	C	033	S	C	C	
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
12	C	C	C	C	B	B	B	B	G	G	G	G	G	G	
13	B	B	B	B	B	B	B	B	029	034M	B	C	C	C	
14	B	-	017	017	B	B	B	B	B	B	G	G	G	B	
15	B	B	B	B	S	B	B	G	G	G	G	G	B	B	
16	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
17	B	B	B	B	B	B	B	B	B	C	C	C	C	C	
18	C	C	C	C	C	C	C	C	C	C	C	B	C	C	
19	C	C	C	C	C	C	C	C	C	C	C	G	B	P	
20	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
21	C	C	C	C	C	C	C	C	C	D031R	G	C	D037S	040	
22	B	B	B	B	B	B	B	G	G	B	C	B	B	045	
23	B	-	B	B	B	B	B	B	G	B	B	B	B	B	
24	B	B	B	B	B	B	B	B	G	B	B	B	B	B	
25	B	B	B	B	B	B	B	B	B	B	B	G	D036R	045	050M
26	021M	M	B	B	B	B	B	B	B	030	G	B	G	G	
27	-	-	B	B	B	B	B	S	G	G	C	C	C	C	
28	C	C	C	C	C	C	C	C	C	C	G	B	B	G	
29	B	B	B	B	B	B	B	G	-	036H	038H	B	039	038	
30	031M	018	B	B	B	B	B	S	G	G	G	G	B	B	
31	B	B	B	B	B	B	B	S	G	034	G	B	G	G	
Median Count	021	-	-	-	-	-	-	-	-	032	034	037	038	039	
	4	1	2	2	-	-	-	1	2	6	5	6	6	6	
UQ	026	-	-	-	-	-	-	-	-	033	039	038	039	045	
LQ	019	-	-	-	-	-	-	-	-	030	032	036	037	035	
QR	7	-	-	-	-	-	-	-	-	3	7	2	2	10	

* Tabulation of 027 = 2.7 Mc.

A

IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

January 1965

09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
033	G	041	039M	G	C	036	033	028	029	B	034M	C	B	B
C	G	C	C	C	C	C	C	C	C	C	C	C	C	C
C	C	038M	035	C	C	C	C	C	C	C	C	C	C	C
B	G	B	G	035	B	040	B	B	C	C	C	C	C	C
B	039M	038M	G	C	B	C	C	C	C	C	C	C	C	C
C	C	G	037	033	035M	B	032	029	028	028M	028M	-	025M	M
033	030	035	G	G	G	G	B	G	B	B	025M	028M	B	B
D029R	G	B	C	G	B	G	032	029M	G	B	B	026M	S	S
B	G	036	G	B	B	G	G	B	G	021	020	B	B	B
C	033	S	C	C	C	C	C	C	C	C	C	C	C	C
C	C	C	C	C	C	034	C	C	C	C	C	C	C	C
G	G	G	G	G	G	G	032	030	B	B	-	C	C	C
034M	B	C	C	C	067M	040M	B	B	S	B	026	029	B	M
B	G	G	G	B	B	G	G	G	025	023M	021M	B	B	B
G	G	G	B	B	B	B	B	B	B	B	B	B	B	B
B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
C	C	C	C	C	C	D038R	037	D041R	033	031	029	C	C	C
C	C	B	B	C	C	B	029	M	B	C	C	C	C	C
G	C	G	B	B	B	B	G	B	B	028	C	B	B	B
B	B	B	B	B	040	036M	031	G	B	B	C	C	C	C
D031R	G	C	D037S	040	044M	B	B	B	B	B	P	B	031M	B
B	C	B	B	045	B	C	B	G	B	B	B	B	B	B
B	B	B	B	B	B	B	032	B	B	B	B	037M	B	-
B	B	B	B	B	040	G	C	B	B	B	B	B	B	026M
B	G	D036R	045	050M	036M	033	032	031	031	026	B	026	027	B
030	G	B	G	G	B	B	043	034	S	B	B	031	032	B
G	C	C	C	C	C	C	C	C	C	C	C	C	C	C
C	G	B	B	G	G	G	B	S	B	B	B	B	B	B
036H	038H	B	039	036	056M	D036R	D032R	D027R	B	B	B	025	B	B
G	G	B	B	B	040	036	B	G	B	B	B	B	B	B
G	034	G	B	G	B	M	036M	G	B	B	B	B	M	029
032	034	037	038	039	040	036	032	030	029	027	026	028	029	-
6	5	6	6	6	8	9	12	8	5	6	7	7	4	2
033	039	038	039	045	050	039	034	033	032	028	029	031	032	-
030	032	036	037	035	038	035	032	029	027	023	021	026	026	-
3	7	2	2	10	12	4	2	4	5	5	8	5	6	-

IONOSPHERIC DATA

cep: 1 Mc to 25 Mc in 0.5 minute

January 1965

09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
036	G	048	055M	G	C	036	034	035	039	B	044M	C	B	B
C	G	C	C	C	C	C	C	C	C	C	C	C	C	C
C	C	045M	037	C	C	C	C	C	C	C	C	C	C	C
B	G	B	G	035	B	040	B	B	C	C	C	C	C	C
B	044M	044M	G	C	B	C	C	C	C	C	C	C	C	C
C	C	G	038	037	044M	B	033	035	038	038M	077M	-	080M	030M
033	030	035	G	G	G	G	B	G	B	B	035M	035M	B	B
D029R	G	B	C	G	B	G	033	038M	G	B	B	035M	S	S
B	G	037	G	B	B	G	G	B	G	021	020	B	B	B
C	033	S	C	C	C	C	C	C	C	C	C	C	C	C
C	C	C	E	C	C	C	034	C	C	C	C	C	C	C
G	G	G	G	G	G	G	035	040	B	B	029	C	C	C
037M	B	C	C	C	074M	075M	B	B	S	B	029	043	B	021M
B	G	G	G	B	G	G	G	G	029	038M	040M	B	B	B
G	G	G	B	B	B	B	B	B	B	B	B	B	B	B
B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
C	C	C	C	C	C	D038R	037	D041R	034	031	030	C	C	C
C	C	B	B	C	C	B	029	043M	B	C	C	C	C	C
G	C	G	B	B	B	G	G	B	B	033	C	B	B	B
B	B	P	B	B	043	041M	036	G	B	B	C	C	C	C
D031R	G	C	D037S	047	055M	B	B	B	B	B	B	B	038M	B
B	C	B	B	047	B	C	B	G	B	B	B	B	B	B
B	B	B	B	B	B	B	033	B	B	B	B	043M	B	035
B	B	B	B	B	040	G	C	B	B	B	B	B	B	052M
B	G	D036R	045	072M	048M	037	035	041	044	029	B	035	035	B
030	G	B	G	G	B	B	056	053	S	B	B	074	043	B
G	C	C	C	C	C	C	C	C	C	C	C	C	C	C
C	G	B	B	G	G	G	B	S	B	B	B	B	B	B
036H	038H	B	039	038	062M	D036R	D032R	D027R	B	B	B	025	B	B
G	G	B	B	B	040	036	B	G	B	B	B	B	B	B
G	034	G	B	G	B	041M	056M	G	B	B	B	B	042M	029
033	034	041	039	043	046	037	035	040	036	032	033	035	042	030
7	5	6	6	6	8	10	12	9	5	6	8	7	5	5
036	041	045	045	047	059	041	036	042	038	038	042	043	061	043
030	033	036	038	037	042	036	033	035	032	029	029	035	037	025
6	8	9	7	10	17	5	3	7	6	9	13	8	24	18

IONOSPHERIC DATA

wcep: 1 Mc to 25 Mc in 0.5 minute

January 1965

09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
036	G	048	055M	G	C	036	034	035	039	B	044M	C	B	B
C	G	C	C	C	C	C	C	C	C	C	C	C	C	C
C	C	045M	037	C	C	C	C	C	C	C	C	C	C	C
B	G	B	G	035	B	040	B	B	C	C	C	C	C	C
B	044M	044M	G	C	B	C	C	C	C	C	C	C	C	C
C	C	G	038	037	044M	B	033	035	038	038M	077M	-	080M	030M
033	030	035	G	G	G	G	B	G	B	B	035M	035M	B	B
D029R	G	B	C	G	B	G	033	038M	G	B	035M	035M	S	S
B	G	037	G	B	B	G	G	B	G	021	020	B	B	B
C	033	S	C	C	C	C	C	C	C	C	C	C	C	C
C	C	C	E	C	C	034	C	C	C	C	C	C	C	C
G	G	G	G	G	G	035	040	B	B	029	C	C	C	C
037M	B	C	C	C	074M	075M	B	B	S	B	029	043	B	021M
B	G	G	G	B	G	G	G	G	029	038M	040M	B	B	B
G	G	G	B	B	B	B	B	B	B	B	B	B	B	B
B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
C	C	C	C	C	D038R	037	D041R	034	031	030	C	C	C	C
C	C	B	B	C	C	B	029	043M	B	C	C	C	C	C
G	C	G	B	B	B	G	G	B	B	033	C	B	B	B
B	B	F	B	B	043	041M	036	G	B	C	C	C	C	C
D031R	G	C	D037S	047	055M	B	B	B	B	B	B	B	038M	B
B	C	B	B	047	B	C	B	G	B	B	B	B	B	B
B	B	B	B	B	B	B	033	B	B	B	B	043M	B	035
B	B	B	B	B	040	G	C	B	B	B	B	B	B	052M
B	G	D036R	045	072M	048M	037	035	041	044	029	B	035	035	B
030	G	B	G	G	B	B	056	053	S	B	B	074	043	B
G	C	C	C	C	C	C	C	C	C	C	C	C	C	C
C	G	B	B	G	G	G	B	S	B	B	B	B	B	B
036H	038H	B	039	038	062M	D036R	D032R	D027R	B	B	B	025	B	B
G	G	B	B	B	040	036	B	G	B	B	B	B	B	B
G	034	G	B	G	B	041M	056M	G	B	B	B	B	042M	023
033	034	041	039	043	046	037	035	040	036	032	033	035	042	030
7	5	6	6	6	8	10	12	9	5	6	8	7	5	5
036	041	045	045	047	059	041	036	042	038	038	042	043	061	043
030	033	036	038	037	042	036	033	035	032	029	029	035	037	025
6	8	9	7	10	17	5	3	7	6	9	13	8	24	18

Characteristic: h'Es

IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

January 1965

Observed at:

Bangkok, Thailand

Lat. 13.73° N, Long. 100.57° E

105° E Mean Time (GMT + 7 hours)

Hour Date \	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
1	C	C	C	C	C	C	C	C	120*	100	G	110	100	G	C
2	B	B	109	B	B	B	E	G	B	110	G	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	100	100	100	C
4	C	C	C	C	C	C	C	C	C	B	G	B	G	105	E
5	C	C	C	C	C	C	C	C	C	B	110	110	G	C	I
6	C	C	C	C	C	C	C	C	C	C	G	100	097	O	O
7	106	105	103	100	B	100	B	B	B	110	111	130	G	G	C
8	130	3	B	B	E	120	B	140	B	110	G	B	C	G	E
9	129	115	112	118	B	B	B	B	B	B	G	110	G	B	E
10	B	B	B	C	C	C	C	C	C	C	140	S	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	B	B	B	B	G	G	G	G	G	G	G
13	B	B	B	B	B	B	B	B	3	110	115	B	C	C	110
14	B	119	115	110	B	B	B	B	B	B	B	G	G	B	G
15	B	B	B	B	S	B	B	G	G	G	G	B	B	B	I
16	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
17	B	B	B	B	B	B	B	B	B	C	C	119	111	C	C
18	C	C	C	C	C	C	C	C	C	C	C	B	B	C	C
19	C	C	C	C	C	C	C	C	C	G	C	G	B	B	L
20	B	B	B	B	B	B	B	B	B	B	B	B	B	B	12
21	C	C	C	C	C	C	C	C	C	E121S	G	C	104	110	1C
22	B	B	B	B	B	B	B	G	G	B	C	B	B	100	E
23	B	111	B	B	B	B	B	B	G	B	B	B	B	B	E
24	B	B	B	B	B	B	B	B	G	B	B	B	B	B	11
25	B	B	B	B	B	B	B	B	B	B	G	105	106	100	1C
26	105	108	B	B	B	B	B	B	B	145	G	B	G	G	E
27	110	110	B	B	B	B	B	S	G	G	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	G	B	B	G	G
29	B	B	B	B	B	B	B	G	120	150H	E120G	B	140	E140G	1C
30	110	109	B	B	B	B	B	S	G	G	E150G	G	B	B	11
31	B	B	B	B	B	B	B	S	G	G	E150G	G	B	G	E
Median Count	110 6	110 7	111 4	110 3	- -	- 2	- -	- 1	120 3	113 8	120 5	110 7	104 7	103 8	10 8
UQ	129	115	114	114	-	-	-	-	120	133	145	119	111	110	11
LQ	106	108	106	105	-	-	-	-	115	110	111	105	100	100	10
QR	23	7	8	9	-	-	-	-	5	23	34	14	11	10	1

* Tabulation of 120 = 120 km.

A

IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

January 1965

	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
*	100	G	110	100	G	C	112	110	118	120	B	100	100	B	B
	110	G	C	C	C	C	C	C	C	C	C	C	C	C	C
C	C	100	100	100	C	C	C	C	C	C	C	C	C	C	C
B	G	B	G	105	B	190	B	B	C	C	C	C	C	C	C
B	110	110	G	C	B	C	C	C	C	C	C	C	C	C	C
C	C	G	100	097	095	B	140	090	190	119	110	112	105	108	
110	111	130	G	G	G	G	B	G	B	B	120	110	B	B	
110	G	B	C	G	B	G	E150G	139	G	B	B	120	S	S	
B	G	110	G	B	B	G	G	B	G	120	108	B	B	B	
C	140	S	C	C	C	C	C	C	C	C	C	C	C	C	
C	C	C	C	C	C	160	C	C	C	C	C	C	C	C	
G	G	G	G	G	G	G	130	110	B	B	120	C	C	C	
115	B	C	C	110	100	100	B	B	S	B	130	105	B	118	
B	G	G	G	B	G	G	G	G	140	102	100	B	B	B	
G	G	G	B	B	B	B	B	B	B	B	B	B	B	B	
B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
C	C	119	111	C	C	102	102	106	105	110	110	C	C	C	C
C	C	B	B	C	C	B	108	100	B	C	C	C	C	C	
G	C	G	B	B	B	G	G	B	B	129	130	B	B	B	
B	B	B	B	B	120	122	125	G	B	B	C	C	C	C	
E121S	G	C	104	110	100	B	B	B	B	B	B	B	B	118	B
B	C	B	B	100	B	C	B	G	B	B	B	B	B	B	
B	B	B	B	B	B	B	120	B	B	B	B	B	120	B	120
B	B	B	B	B	110	G	110	B	B	B	R	B	B	B	119
B	G	105	106	100	100	100	100	100	120	120	B	118	110	B	
145	G	B	G	G	B	B	100	100	S	B	B	110	100	100	
G	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
C	G	B	B	G	G	G	G	B	S	B	B	B	B	B	
150H	E120G	B	140	E140G	100	100	118	125	B	B	B	119	B	B	
G	G	B	B	B	110	103	B	G	B	B	B	B	B	B	
G	E150G	G	B	G	B	120	111	G	B	B	B	B	115	118	
113	120	110	104	103	100	116	111	106	120	120	110	112	110	118	
3	5	7	7	8	8	10	13	9	5	6	9	9	5	6	
133	145	119	111	110	110	123	111	129	165	120	125	120	117	119	
110	111	105	100	100	100	100	105	100	114	110	104	108	103	108	
23	34	14	11	10	10	23	6	29	51	10	21	12	14	11	

Characteristic: Type of Es

IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

January 1965

Observed at:

Bangkok, Thailand

Lat. 13.73° N, Long. 100.57° E

105° E Mean Time (GMT + 7 hours)

Hour Date \	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
1	-	-	-	-	-	-	-	-	c	f2	-	cl	l	-	-
2	-	-	f2	-	-	-	-	-	-	f2	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	f2h	l	lc	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	l	-
5	-	-	-	-	-	-	-	-	-	cl	c	l	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-	l	l	l
7	f2	f2	f2	f	-	f	-	-	-	-	l	c	c	-	h
8	f	-	-	-	-	f	-	hc	-	c	c	-	-	-	-
9	f	f4	f	f	-	-	-	-	l	-	-	l	-	-	-
10	-	-	-	-	-	-	-	-	-	-	h	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	c	-	-	c	-	-
13	-	-	-	-	-	-	-	-	c	-	-	-	c	c	c
14	-	f	f	f	-	-	-	-	-	-	-	-	l	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-	l	-	-
17	-	-	-	-	-	-	-	-	-	-	-	c	c	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-	l	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	cl
21	-	-	-	-	-	-	-	-	-	c	c	-	c	b	l
22	-	-	-	-	-	-	-	-	-	-	-	-	b	-	-
23	-	f	-	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-	h	l
25	-	-	-	f	-	-	-	-	-	-	-	l	lh	l3	l
26	f	f	-	-	-	-	-	-	-	c	-	-	-	-	-
27	f	f	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	l	h	h	h	h	h	l2
30	f3	f2	-	-	-	-	-	-	-	-	-	-	c	c	c
31	-	-	-	-	-	-	-	-	-	-	h	-	-	h	-
Median Count	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*

A

IONOSPHERIC DATA

Step: 1 Mc to 25 Mc in 0.5 minute

January 1965

09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
z2	-	c _l	x	-	-	c	c3	x	f2	-	f2	-	-	-
z2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	z2h	l	lc	-	-	-	-	-	-	-	-	-	-
-	-	-	-	h	-	l	-	-	-	-	-	-	-	-
c _l	c	b	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	s	l	l	-	h _l	z2	f2	f	f	f	f2	f3
l	c	c	-	h	-	-	-	-	-	f2	f2	f2	-	-
c	c	-	-	-	-	-	h	c	-	-	-	-	-	f
-	-	l	-	-	-	-	-	l	-	f2	-	-	-	-
-	-	h	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	n	l	l	-	-	-	-	-	-
c	c	-	c	c	c	z2	l	-	-	-	f3	f	-	f
-	-	-	l	-	-	-	-	-	f	f	-	-	-	-
-	-	-	-	-	-	-	h	-	-	-	-	-	-	f
-	-	-	l	-	-	-	-	l	l	-	-	-	-	-
-	-	c	c	-	-	l	l	l	l	f	f	-	-	-
-	-	l	-	-	-	-	l	l	l	-	-	-	-	-
-	-	-	-	-	cl	cl	cl	-	-	-	-	-	-	-
c	c	-	c	l	l	l2	-	-	-	-	-	-	f	-
-	-	-	l	-	-	-	c	c	-	-	-	f3	-	f
-	-	-	-	h	l	c	l	l2	f	-	-	-	f	f
-	-	z	lh	z3	l	lc	l3	l2	f	f	-	f	f	-
c	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
h	h	h	h	h	z2	l	c	c	-	-	-	f2	f	-
-	-	-	c	c	l	-	-	-	-	-	-	-	f	-
-	h	-	-	h	h	c	c	-	-	-	f	f	f	f
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



MEDIAN VALUES JANUARY 1965

Hour Local	f_{min} (Mc)	f_{0F_2} (Mc)	$M(3000)F_2$	$h'F_2$ (km)	$h'F_1$ (km)	$M(3000)F_1$	f_{0E^*} (Mc)	$h'F$ (km)	f_{0Es} (Mc)	$h'Es$ (km)
00	2.0	3.7	3.45	-	240	-	-	-	2.1	2.0
01	1.7	3.5	3.38	-	235	-	-	-	-	110
02	1.5	3.0	3.42	-	240	-	-	-	-	110
03	1.6	2.5	3.50	-	235	-	-	-	-	111
04	1.7	2.2	3.45	-	240	-	-	-	-	110
05	1.8	2.5	3.35	-	263	-	-	-	-	-
06	2.3	2.4	-	-	310	-	-	-	-	-
07	2.4	4.2	3.40	-	250	-	-	-	-	-
08	2.8	6.2	3.35	270	230	-	-	114	-	2.7
09	3.2	7.5	3.20	299	220	4.2	3.62	-	120	3.2
10	3.5	8.3	3.15	319	208	4.3	3.83	-	119	3.4
11	3.9	7.7	2.90	322	210	4.4	3.90	-	3.7	4.1
12	3.9	7.1	2.70	355	210	4.3	4.08	-	-	3.8
13	4.0	7.1	2.63	370	205	4.4	4.00	-	-	3.9
14	3.5	7.1	2.60	370	200	4.3	3.95	-	-	4.0
15	3.2	7.3	2.70	210	205	4.3	3.70	-	114	3.6
16	2.8	7.2	2.70	17	225	-	-	-	120	3.2
17	2.7	7.5	2.97	68	233	-	-	-	-	3.0
18	2.5	7.7	3.15	-	250	-	-	-	-	2.9
19	2.5	7.3	3.30	-	240	-	-	-	-	2.7
20	2.6	6.7	3.35	-	238	-	-	-	-	2.6
21	2.3	6.1	3.25	-	238	-	-	-	-	2.8
22	2.4	5.3	3.40	-	235	-	-	-	-	3.5
23	2.3	4.5	3.58	-	237	-	-	-	-	4.2
										3.0
										118

* Insufficient data for reliable median.

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS
BANGKOK, THAILAND
JANUARY 1965

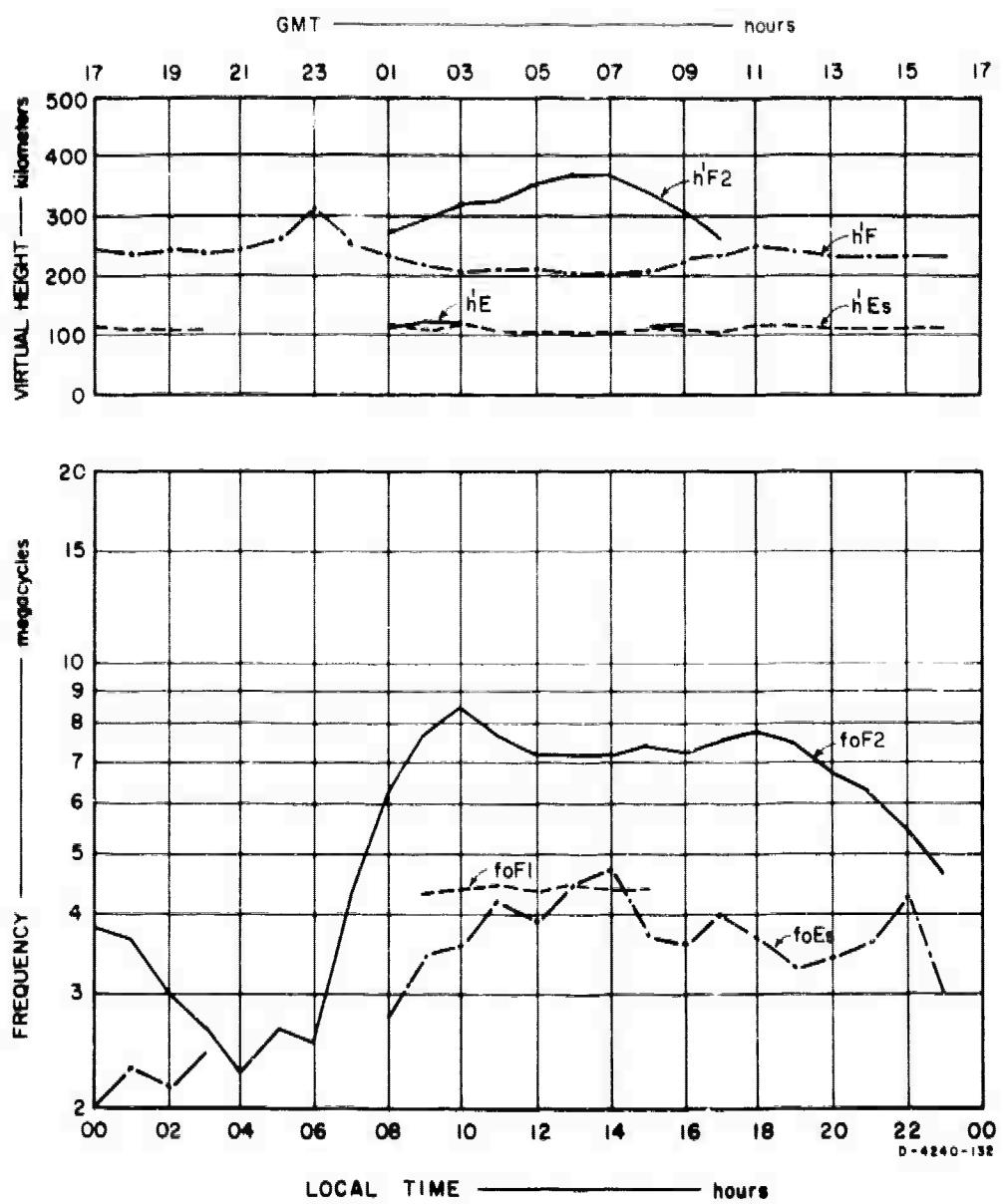


FIG. 1 SUMMARY GRAPHS

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